In the Claims:

Please amend the claims as follows:

1. (Currently Amended) A method for efficiently handling high contention locking in a multiprocessor computer system, comprising:

organizing at least some of the processors into a hierarchy;

providing a lock selected from the group consisting of: an interruptible lock, and a lock which waits using only local memory; ~~and~~

processing the lock responsive to the hierarchy; and

maintaining a release flag for a group of processors to prevent races between acquisition and release of the lock.

2. (Original) The method of claim 1, wherein the processing step conditionally acquires the lock.

3. (Original) The method of claim 1, wherein the processing step returns a failure to grant the lock if the lock is not immediately available.

4. (Original) The method of claim 1, wherein the processing step unconditionally acquires the lock.

5. (Original) The method of claim 4, wherein the processing step spins on the lock until the lock is available.

6. (Original) The method of claim 4, further comprising allowing system interrupts while spinning on the lock

7. (Original) The method of claim 1, wherein the processing step unconditionally releases the lock.

8. (Original) The method of claim 1, wherein the processing step the processors spin on private memory.

9. (Original) The method of claim 1, wherein the hierarchy includes a data structure having a bit mask indicating which processors of a group are waiting for the lock.

10. (Original) The method of claim 1, wherein the hierarchy includes a data structure having a bit mask indicating which groups of processors have processors waiting for the lock.

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12. (Original) The method of claim 1, further comprising maintaining a handoff flag for a group of processors to grant the lock to a processor requesting an unconditional lock from a processor requesting a conditional lock.

13. (Currently Amended) A computer system comprising:

multiple processors;

a lock selected from the group consisting of: an interruptible lock, and a lock which waits using only local memory; and

a hierarchical representation of processor organization; and

a lock primitive for processing the lock responsive to the hierarchy, wherein said primitive further comprises a handoff flag to grant a lock to a processor requesting an unconditional lock from a processor requesting a conditional lock.

14. (Original) The computer system of claim 13, wherein said primitive further comprises a conditional lock acquisition primitive.

15. (Original) The computer system of claim 14, wherein said conditional lock acquisition further indicates a lock failure if said lock is not immediately available.

16. (Original) The computer system of claim 13, wherein said primitive further comprises an

unconditional lock acquisition primitive.

17. (Original) The computer system of claim 16, wherein said processor may enter a spin stage of said lock is not immediately available.

18. (Original) The computer system of claim 16, wherein said lock may be subject to a system interrupt during a spin stage.

19. (Original) The computer system of claim 13, wherein said primitive further comprises a primitive for an unconditional release of said lock.

20. (Original) The computer system of claim 13, wherein said primitive further comprises a release flag to prevent races between acquisition and release of the lock.

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22. (Currently Amended) An article comprising:

a computer-readable signal bearing medium; multiple processors;

means in the medium for hierarchically organizing at least some of the processors of a computer system;

means in the medium for providing a lock selected from the group consisting of: an interruptible lock, and a lock which waits using only local memory; and

means in the medium for processing the lock responsive to the hierarchy, wherein said means is a release flag responsive to races between acquisition and release of a lock.

23. (Original) The article of claim 22, wherein the medium is a recordable data storage medium.

24. (Original) The article of claim 22, wherein the medium is a modulated carrier signal.

25. (Original) The article of claim 22, wherein the means is a conditional lock acquisition

primitive.

26. (Original) The article of claim 25, wherein a lock failure is indicated if the lock is not immediately available.

27. (Original) The article of claim 22, wherein the means is an unconditional lock acquisition primitive.

28. (Original) The article of claim 28, wherein a spin stage is entered by a processor if the lock is not immediately available.

29. (Original) The article of claim 22, wherein the means is an unconditional lock release primitive.

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31. (Original) The article of claim 22, wherein said means is a handoff flag responsive to a processor requesting an unconditional lock from a processor requesting a conditional lock.